Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1.An apparatus for improving the management of received data packets of a host system that comprises a plurality of data buffers and a plurality of descriptors that corresponds to a subset of the plurality of data buffers to manage the received data packets, the apparatus comprising:

a receiver for receiving a data packet;

a first storage unit for storing the data packet from the receiver;

a counter for monitoring the number of descriptors in a first state to produce a count value;

a second storage unit for storing a threshold value; and

a comparator for comparing the count value with the threshold value and producing a comparison signal;

wherein the apparatus issues a first event to the host system according to the comparison signal.

[c2] 2.The apparatus of claim 1 further comprising a Receive DMA (direct memory address) for transferring the data packet from the first storage unit into the data buffers.

[c3] 3.The apparatus of claim 2 wherein the counter, the sec-

ond storage unit, and the comparator are positioned within the Receive DMA module.

[c4] 4.The apparatus of claim 1 wherein the first event indicates that data buffers corresponding to the descriptors should be cleared.

[c5] 5. The apparatus of claim 1 wherein the first state is an unavailable state.

[c6] 6.The apparatus of claim 1 wherein the threshold value is programmable.

[c7] 7.The apparatus of claim 1 wherein the first state is a free state.

[c8] 8. The apparatus of claim 1 wherein the apparatus issues a second event when the data packet is an ok packet.

[c9] 9. The apparatus of claim 8 wherein the data buffers corresponding to the descriptors are cleared when the first event or the second event is issued.

[c10] 10.The apparatus of claim 1, wherein the apparatus is a wireless network device.

[c11] 11.A method for improving the management of received data packets of a host system that comprises a plurality of data buffers and a plurality of descriptors that corre-

sponds to a subset of the data buffers to manage the received data packets, the method comprising:
receiving a data packet;
transferring the data packet into at least one of the data buffers;
monitoring an amount of the descriptors in a first state;
comparing the amount with a threshold value to generator a comparison signal; and
generating a first event to the host system according to the comparison signal to prevent all the descriptors from being in the first state.

[c12] 12.The method of claim 11 wherein the first state is an unavailable state.

[c13] 13.The method of claim 11 wherein the threshold value is programmable.

[c14] 14.The method of claim 11 wherein the first state is a free state.

[c15] 15.The method of claim 11 further comprising:
generating a second event when the data packet is an ok packet.

[c16] 16. The method of claim 15 wherein the data buffers corresponding to the descriptors are cleared when the first event or the second event is generated.

[c17] 17.The method of claim 11 wherein the method further comprises issuing a third event when transferring an error packet.

[c18] 18. A method for improving the management of data packets received from a network by a host system that comprises a plurality of data buffers and that utilizes a plurality of descriptors that corresponds to a subset of the plurality of data buffers to manage the data packets received from the network, the method comprising:
receiving a data packet from the network;
transferring the data packet into at least one of the data buffers;
monitoring the number of descriptors that will have their state changed when the data packet is transferred;
calculating a count value according to the number of descriptors that will have had their state changed by the data packet being transferred; and
comparing the count value with a threshold value, and triggering a first event to the host system when the count value reaches the threshold value;
wherein the first event notifies the host system to clear the data buffers corresponding to the descriptors.